

faced by an account of maiotic phenomena generally and a detailed comparison of those phenomena with the changes observed in cancer-cells.

It will be remembered that the authors of the communication referred to drew a comparison between the nuclear phenomena in cancer-cells and those characterising the process of maturation in the cells of reproductive glands. The degree of similarity between the two processes was found to be such as to suggest the inference that the type of cell-proliferation in the two cases was identical; and to those possessing a sense of the morphological significance of nuclear form this conclusion appeared to be warranted.

Deviations from the normal mitotic process were, however, already well recognised in cancer-cells, and had been interpreted as being purely pathological phenomena. Upon this view the resemblance between the nuclear forms met with in cancer-cells and those encountered in reproductive tissue would be regarded as accidental, and, in particular, the approximate halving of the number of chromosomes in individual cells of a group exhibiting extensive numerical variations both above and below that number would be looked upon as a merely chance occurrence.

Before this interpretation could be considered to have been satisfactorily displaced, it was, therefore, necessary to demonstrate that the definite halving of the chromosomes occupies a dominant position in the cancerous process, and to trace in every detail the points of similarity between that process and the maiotic process of reproductive tissue. Further research in these directions has tended to strengthen the original contention. By constructing the frequency-curve of the numerical variations of chromosomes in cancer-cells, the important position occupied by the definite halving of the number of chromosomes has been exhibited in a convincing manner; and the parallelism between the normal maiotic and the cancerous modes of cell-division has been traced in such detail as, apparently, to leave few points for further comparison.

It may, then, be confidently affirmed that the cancerous process has now been definitely and accurately referred to its physiological type, and, although the process may deviate from its type in certain particulars, marked rather by degree than kind, such as the number of post-maiotic divisions, the validity of the assertion is not thereby affected, since the different circumstances in which the two processes arise must inevitably find expression in corresponding modifications in the processes themselves.

A caution is given on p. 25 against a too hasty assumption that all gametoid tumours are malignant. It is well known that the malignancy of cancerous growths varies in degree in different cases, and that, as regards histological characters, every stage of transition may, in the case of certain organs more especially, be traced in different tumours between structures bearing the distinctive marks of malignancy and such as are undistinguishable from benign growths. It is conceivable that at the limit of such a series of transitional forms, tumours may exist which, whilst possessing the features of gametoid growths, are devoid of the properties which denote malignancy. The point is one of great theoretical interest, although in practice it is probable that such tumours would be treated as malignant in view of their close relationship to definitely malignant growths. The authors, however, barely touch upon this aspect of the subject, but suggestions are thrown out which appear to indicate further research into the nature of malignancy and a prospect of substantial results.

NOTES.

APPARENTLY, the British Government is indifferent to any increase of facilities for the advancement of knowledge, for it makes no attempt to show active interest in organisations and institutions concerned with science and higher education. The Carnegie Institute at Pittsburg was dedicated last week in the presence of a large and distinguished company, but neither the British Ambassador nor any member of the British Embassy was present at the ceremony, though invitations were sent. On the other hand, the German Emperor was represented by a special commission of six members of the highest rank; France and Italy were also represented, and there were present numerous representatives of other Embassies and Legations. It is unfortunate that England should have been without a political representative upon such an occasion, but the omission is only another instance of the failure of British statesmen to understand the significance of anything relating to science or progressive learning. The *Times* correspondent states that the absence of British representatives and the consequent tone of the whole proceedings left a regrettable impression among the British and Canadians, who formed a large majority of the foreign guests. He remarks:—"By Germany an opportunity has been cleverly and quite legitimately seized; by England it has been, by sheer stupidity, carelessly neglected." These words could be applied to so many similar instances that they may be considered as describing the characteristic attitude shown by the two countries to scientific work. We hope to give an account of the opening of the institute in an early issue.

PROF. ROSS contributes a second letter to the *Times* of April 13 on the subject of Mr. Haffkine's prophylactic and the Mulkowal disaster. We are not so much concerned with the details of the case as with the broad questions suggested by recent occurrences in connection with the steps taken to prevent the spread of plague. Prof. Ross maintains that the whole story affords another signal instance of the disregard for science so frequently displayed in British administration, and the evidence he offers establishes his position. He states that in the nine years up to the end of 1905 more than 4,000,000 deaths from plague were recorded in India alone, and Prof. Simpson says that 20,000 deaths are still occurring there every week. Though plague had been raging in Hong-kong for two years before the outbreak in Bombay, the authorities appear to have organised no system of sanitary intelligence, to have investigated few of the cases, and to have had no bacteriological department at hand. The result was that when plague appeared all was confusion. "No one seemed to understand," says Prof. Ross, "that such epidemics can be successfully combated only by the methods which succeed in the case of a military invasion. There was no scientific head of the defensive organisation, which was not even centralised until March, 1907. Generals and civilians were made dictators in a matter of which they had no knowledge, and occupied themselves with burning sulphur at street corners, and so on; and then, when these tactics failed, laid the blame on their subordinates, the doctors, whose advice they had frequently ignored, and whose science they had habitually despised. Everywhere, instead of the knowledge, organisation, and discipline which are essential in such emergencies, we saw only nescience, confusion, and vacillation. . . . History shows that plague, if taken in time, can be quickly eradicated; and in my opinion the blame for this terrible visitation must be laid largely on those who governed the

country, but neglected until too late the precautions and organisation indicated by sanitary science." It is remarkable that our statesmen learn with such difficulty the value of the application of the methods of science to administrative matters, especially in view of the object-lessons provided by neighbouring nations, lessons sufficient to convince the least thoughtful of the use of science in deciding national difficulties. It cannot be repeated too often, in the hope that eventually our legislators and administrators may learn the truth, that the nation which makes the most intelligent use of scientific discoveries and systematically approaches all questions in a scientific manner will assuredly occupy the most honoured place among the peoples of the world.

THE Upsala commemoration of the Linnæus bicentenary will take place on May 23-25. The celebrations, which are to be held under the auspices of the University of Upsala, will begin on May 23, in the Aula of the University, with a formal reception of the guests. On the evening of the same day a further reception will be held in the University buildings. On May 24 there will be a promotion to degrees, only Swedish doctors being promoted. It is proposed this year to revive the ancient custom of conferring degrees in the cathedral instead of in the University Aula. The evening of May 24 will be taken up by a dinner given to the guests by the University, and it is probable there will also be demonstrations on the part of the students. On May 25 the Royal Academy of Sciences, Stockholm, will also commemorate the bicentenary in Stockholm. All foreign delegates invited by the Upsala University will be provided with free hotel accommodation during their stay in Upsala and Stockholm.

MAGNETOGRAPHS of Prof. Watson's pattern have been installed recently in the Helwan Observatory near Cairo.

MR. F. E. BEDDARD, F.R.S., has been appointed an honorary member of the New Zealand Institute.

M. DESLANDRES has been elected president of the Astronomical Society of France for the year 1907-8.

THE summer meeting of the British Archæological Association will be held this year in Dorset, with Weymouth as the headquarters.

THE Croonian lecture of the Royal Society will be delivered by Prof. J. B. Farmer, F.R.S., on Thursday next, April 25, "On the Essential Constituents of the Nucleus and their Relation to the Organisation of the Individual."

A REUTER message from Mexico states that the towns of Chilpancingo and Chilapa, in the State of Guerrero, have been destroyed by an earthquake.

THE British Science League and the British Empire League will give a complimentary dinner to the Colonial Prime Ministers at the Whitehall Rooms on Thursday, May 2, at 8 p.m.

THE annual dinner of the Institution of Mining and Metallurgy will be held at the Hotel Cecil on Friday, May 3. Prof. W. Gowland, president of the institution, will occupy the chair, and many leading representatives of pure and applied science have accepted invitations to be present.

ON Tuesday next, April 23, Prof. W. Stirling will deliver the first of a course of three lectures at the Royal Institution on "Stimulation, Luminous and Chemical." The Friday evening discourse on April 26 will be delivered

by Mr. J. Swinburne, on "New Illuminants," and on May 3 by Sir James Crichton Browne, on "Dexterity and the Bend Sinister."

THE International Commission of Scientific Aërostation at its last meeting at Milan in October, 1906, resolved, on the recommendation of M. Teisserenc de Bort, to carry on during the years 1907 and 1908 the investigation of the upper atmosphere in the northern hemisphere on a much more extended scale than has hitherto been attempted. The Royal Meteorological Society has been invited to take part in this scheme, and the council proposes, if possible, to organise and equip special stations in different parts of the British Empire north of the equator. Unmanned "registering" balloons carrying self-recording instruments, and also smaller "pilot" balloons, are to be used, the heights and drift of which will be determined by theodolites. The ascents in 1907 are to be made on three consecutive days in each of the months July, September, and November.

"BLACK rain" fell in Pembrokeshire on April 10. It was accompanied by a violent thunderstorm and a darkened atmosphere. The ominous darkness was observed as far east as Cardiff, but the violent thunder, &c., was confined to districts further west. Discoloured rain is also said to have fallen at Carmarthen. There have been several such falls in South Wales of recent years. One of these occurred round Barry, as well as in the west of England, on January 23, 1902, and the matter was carefully discussed by Dr. Mill before the Royal Meteorological Society. A second fall took place on February 21, 1903. This was more extensive than the other, and the dust differed appreciably from that of the previous fall. Analysis of the 1903 dust made at Cardiff College led to the belief that it was probably volcanic. Traditional accounts of falls of frogs, snails, and fish occur in the annals of Glamorgan.

THE *Daily Chronicle* of April 10 contained the following paragraph:—"A thunderbolt fell at Birkenhead yesterday, and several persons had narrow escapes from death. When a storm seemed about to burst over the town a ball of fire swept over the Bidston Observatory, and struck a mound of earth, whence it rebounded into a field, and set fire to some gorse there. A vanman who was near at the time was knocked down, and a florist working in his garden was enveloped in a ring of flame and whirled several yards, while the spade with which he was working was hurled over the hedge. A cow grazing in a field was brought to the ground by the shock, and several workmen in the vicinity, who had trowels in their hands, were considerably alarmed at being knocked off the ladders on which they were working. People who were several hundred yards away from the spot where the bolt fell received violent shocks, and were last night suffering from nervous prostration." Inquiries made at the Bidston Observatory with reference to the so-called "thunderbolt" and the amount of damage occasioned, show that there is little foundation for this somewhat sensational report. Some of the features associated with the presence of "ball lightning" seem to have been noticed. There does not seem to be any evidence that a globe of light was seen, but there were some signs of horizontal motion, and the characters of the after effects resemble those produced by this unexplained phenomenon. But the essential mark of slow motion common to "ball lightning" was certainly not noticed, and the injury to workmen at some distance, though slight, points to the more ordinary effects of lightning.

The injuries produced seem to be more nearly akin to those described as lightning strokes in the open field. The irregularities of the surface of the land in the immediate district are very slight, and owing to the difficulty that lightning has in striking down upon a smooth plane surface, the boring of a hole in the ground some 2 feet in diameter and 18 inches deep has directed attention to this particular discharge by reason of its unusual character. There was no evidence of fused silica near this hole.

THE Port Erin Biological Station has never been more fully used by workers in marine biology than during the present Easter vacation. From the last week in March onwards throughout April, systematic collecting at sea and investigations in the laboratory have been actively pursued by as many biologists as can be comfortably accommodated. During the first half of April ten to twelve investigators occupied seats in the laboratory, and about the middle of the month a dozen senior students came in addition. The researchers include Prof. B. Moore (biochemistry), Dr. H. Roaf (physiology of crustacea), Mr. J. Pearson (cancer), Mr. R. D. Laurie (biometrics), Mr. W. J. Dakin (Pecten), Prof. Herdman, Mr. Wollaston, and Mr. Gunn, all from Liverpool University; Prof. Hickson, Mr. Chaffers, and Mr. Whitnall, from the Victoria University of Manchester; Mr. Unwin, from the University of Leeds; and Mr. Chadwick, the resident naturalist. Plankton collections, both surface and deep, are being taken periodically, at stated localities, over a limited area for statistical purposes, from the S.Y. *Ladybird*, and the usual sea-fish hatching and distribution of larval plaice is in progress.

DR. B. GLANVILL CORNEY, chief medical officer of the Government of Fiji, directs our attention, in a letter received from Fiji, to an instance of poisoning by turtle's flesh which occurred at a village in the island of Vanua Levu, Fiji. The turtle was cooked immediately after being killed, and no question of unfitness for food through putrescence arises; indeed, neither the history of its capture and preparation for the oven, nor of the symptoms which supervened after its ingestion, points in any way to poisoning by ptomaines. The indications were, on the other hand, that the turtle itself had become poisoned before its capture, presumably through having consumed some unaccustomed article of diet on the reefs. That something was wrong with the turtle before it was caught seems certain, as the men who captured it are reported to have discussed the question as to whether it was fit to be eaten. Dr. A. W. Campbell, district medical officer and magistrate of the locality near where the poisoning occurred, reports the history of the attacks as follows:—Severe headache and vomiting, abdominal pain; diarrhoea not marked. So far as could be ascertained, in several cases an interval of seventy-two hours intervened between the ingestion of the turtle and the first symptom, and in most cases there was an interval of twenty-four hours. Some four or five days after the attacks began, ulceration of the lips, tongue, cheeks, and fauces occurred, and every one of the cases seen was so affected. Abdominal pain was not marked in the later stages. Twenty-five deaths in all were attributed to poisoning by the turtle's flesh.

THE fourth part of vol. v. of the *Annals of the South African Museum* contains a paper by Mr. S. Schenkling on new beetles of the family Cleridae, and a second, by Mr. P. Cameron, on parasitic Hymenoptera.

A DEFINITE mode of measuring the fossæ in the interior of the human skull forms the subject of a paper by Mr. A. Hrdlička, published as No. 1521 of the *Proceedings of the U.S. National Museum*. Such measurements are of considerable importance in estimating brain-volume, even in cases where the brain itself is available, the weight of that organ tending to alter the shape of its lower surfaces when removed from the skull.

WE have received copies of several parts of vol. xvi. of the *Transactions of the Academy of Science of St. Louis*, published at various dates during 1906. The first of these is devoted to an account of the celebration of the fiftieth anniversary of the first meeting of the academy. Land-snails from Michichan form the subject of a paper by Mr. F. C. Baker, while Mr. R. J. Terry describes the nasal skeleton of the salamander *Amblystoma punctatum*, and Mr. S. Weller discusses the fauna of the Palæozoic Glen Park limestone.

IN their report for the year ending June, 1906, the trustees of the Australian Museum record their opinion that collections made in New South Wales ought not to be permitted to pass out of the country, especially when, by a simple process of combination amongst the State departments interested, the collections in question could be acquired at a reasonable cost and subdivided amongst the various metropolitan and country museums. It is also stated that until the museum is enlarged no further progress can be made in the exhibition of specimens to the public.

AMONG the contents of part iii. of the third volume of the quarterly issue of *Smithsonian Miscellaneous Collections*, reference may be made to a paper by Prof. Theodore Gilt on various non-European representatives of the carp family (Cyprinidae). One of the most remarkable features in the distribution of the group is the total absence of barbels (Barbus), which are so numerous and so widely spread in the Old World, from North America. This feature, coupled with the peculiarities of the North American cyprinid fauna generally, is held by the author to afford a strong argument against the inclusion of the northern portions of the three northern continents in a single zoological region. It is noteworthy, however, that an approximation to Old World types is met with among the cyprinid fauna of the Pacific slope of North America which is lacking in that of the opposite side of the continent.

FROM a distributional point of view, great interest attaches to the description by Prof. Al. Mrázek, of Prague, in the *Sitzungsberichte der kgl. Böhm. Gesellschaft der Wissenschaften* for 1906 of a member of the group of flat-worms known as the Temnocephalidae, from Montenegro. These worms, which are parasitic on fresh-water crayfish and crabs, have hitherto been known only from tropical and subtropical countries, such as Australasia, Malaya, Madagascar, India, Chili, and Brazil, and the occurrence of an outlying form in the Palæarctic area is therefore very remarkable. There are, however, other features in the fauna of Montenegro which indicate that it is of a somewhat abnormal type. The host of the worm is the crustacean *Atyaephyra desmaresti*, a species with a rather wide distribution in the south of Europe. The locality where the worm was found is the delta of the river Morača, which discharges into the lake of Scutari, and on this ground the name *Scutariella didactyla* is proposed for the new form, which is regarded as generically distinct from Temnocephala. To the same issue Prof.

Mrázek contributes an account of a polypharyngeal planarian from Montenegro, this being the second representative of that group from this country.

No. 93 of the *Bulletin de l'Institut Océanographique*, published at Monaco, contains an illustrated account, by Mr. E. L. Bouvier, of the Paris Museum, of zoological observations made during a cruise in the Atlantic in 1905 on the Prince of Monaco's yacht *Princess Alice*. After briefly referring to the cetaceans and pelagic fishes observed, the author devotes considerable space to the invertebrate fauna of the Sargasso Sea, which he declares to be of surpassing interest to the naturalist. Among the numerous species figured, one of the most striking is a copepod crustacean (*Copilia vitrea*), in which the eyes are unusually large, while the swimming-limbs are richly garnished with feather-like expansions. In the latter respect this crustacean presents a curious analogy to the well-known Sargasso fish *Antennarius marmoratus*. Other Sargasso invertebrates, like a species of *Sagitta*, obtain protection by means of the pellucid nature of their tissues. Considerable interest attaches to the observation that the hemipterous insects *Halobates* differ from all other pelagic forms in not seeking shelter below the surface in stormy weather. A second chapter is devoted to the deep-sea fauna, among which the author directs special attention to the remarkable holothurian *Pelagothuria bouvieri*.

THE *Irish Naturalist* for April contains the report of an address on the problems of an island fauna delivered by Mr. C. B. Moffat, as president, to the Dublin Naturalists' Field Club on January 8. Starting with the fact that the modern fauna of Ireland is poorer than that of Great Britain, and the latter inferior in richness to that of the Continent, the author raises the question whether the theory that this poverty is due to animals having been unable to effect an entrance into these areas affords a satisfactory solution. The idea that oceanic islands have received their faunas by dispersive agencies is held to be untenable, such faunas, it is argued, being merely remnants of larger ones derived from ancient continental connections. On this hypothesis, there would seem to be grounds for the belief that island faunas have an inherent tendency to self-effacement, and it is suggested that this tendency may be in part due to weakness in those members of a species which inhabit the peripheral zone of its distributional area. "Both Great Britain and Ireland," it is urged, "certainly have lost, within times that were at least subsequent to the beginning of the ice-age, a considerable number of species, which are shown by the explorers of our caves to have flourished here when we had still a continental connection. How they came to die out . . . we cannot say. But I do think it is a mistake to assume that the insulation of the British and Irish areas has affected our fauna and flora in no other way than by preventing the advent of new species. We have to explain how we have lost as well as how we have failed to gain."

In an account, forming vol. ii., No. 1, of the Philippine Journal of Science, dealing with polypodiaceous ferns collected from one locality, San Ramon, on the Philippine island of Mindanao, Mr. E. B. Copeland discusses their distribution in the different vegetative zones and their structural adaptations. The collection amounted to the large number of 184 species, of which one-seventh were local and the rest Malayan. In addition to the ecological notes, that are very interesting but too detailed for summarising, the author has

assayed the difficult task of formulating a taxonomic grouping of the order that is illustrated in a genealogical tree. *Lastræa* is regarded as a central type from which many branches, e.g. *Microlepidia*, *Polystichum*, and *Goniopteris*, have sprung; *Polypodium*, *Athyrium*, and *Acrophorus* are associated with *Lastræa* as primitive forms.

THE third number of the Kew Bulletin for the current year contains a list of flowering plants and cryptogams sent from Labrador by Sir William McGregor. Special interest attached to the lichens, as it was suggested that an attempt would be made to naturalise the reindeer if the food material it requires was available in sufficient quantity. According to the notes accompanying the specimens, *Cladonia rangiferina* appears to be abundant, and with it are commonly associated *Cetraria aculeata* and *Platysma nivalis*. An article, "Alpine Notes from Sikkim," is extracted from a letter written by Mr. I. H. Burkill describing a tour in search of Aconite tubers; an illustration shows *Aconitum spicatum* and a hybrid Aconite in flower. A new genus of Compositæ is defined from Tibetan material by Mr. J. R. Drummond under the name of *Chlamyditis*, having affinities with the Tibetan plant *Cremanthodium Deasyi*. Two economic articles provide information on the distillation of camphor and the cultivation of ginseng, a variety of *Aralia quinquefolia*, in Korea.

IN the Journal of the Franklin Institute (vol. clxiii., No. 3) Prof. Oscar C. S. Carter describes in detail the Government irrigation project at Yuma. The project contemplates diversion of the waters of the Colorado River about ten miles north-east of Yuma, Arizona, into two canals. In Arizona these canals will irrigate all the bottom lands of the Colorado and Gila rivers between the Laguna dam and the Mexican boundary, an area of 84,000 acres, and in California the bottom lands in the Yuma Indian Reservation, an area of 17,000 acres. Engineering skill of the highest order will be required. The Roosevelt dam in the Salt River Cañon, Arizona, will be solid masonry 285 feet high, and, joining the cañon walls several hundred feet apart, will form a lake twenty-five miles long and 200 feet deep. The details given tend to show that the United States will soon take the lead as the foremost country where irrigation is practised on a large scale.

THE Transactions of the Institution of Engineers and Shipbuilders in Scotland (vol. I., part v.) contain a suggestive paper on the mechanism of power transmission from electric motors, by Mr. Wilfrid L. Spence. He brings forward possible alternatives to the commoner methods, with typical applications of each system. Direct coupled drives are to be preferred to all others whenever practicable. Belt drives are to be preferred to any form of strictly positive connection between constant speed motors and fly-wheel operated machinery. A fly-wheel is quite useless with a constant speed motor positively connected to its load. Single reduction spur gear may be regarded as the standard gear transmission for ratios up to 5 or 6 to 1. When the distance between centres is great, the idler spur gear (cast-iron pinion, raw-hide idler, and cast-iron wheel) is a substitute for plain single reduction gear. Chain gear may, as a rule, also be used, but only for ratios up to 5 or 6 to 1. For ratios up to 30 to 1, and where space is not of much account, double reduction spur gear is applicable. As treble reduction spur gear, which is applicable for reduction between 40 and 150 to 1, takes up much space and is costly, it is not to be recommended. When extreme compactness is desirable,

planetary gear drives may be used, and where silent running is desired with total enclosure, and a right-angled transmission is permissible, there is nothing to equal worm gear, which shows to best advantage for reductions of 15 or 20 to 1.

WE have received from Messrs. Wratten and Wainwright specimens of their M screens and "Verichrome" and "Allochrome" plates for photomicrography, together with an explanatory booklet. The screens, nine in number, consist of gelatin films impregnated with dyes which admit the passage of light of certain wave-lengths, the values of which are given. We have examined spectroscopically the light transmitted by each of them, and find it to be correctly stated in the booklet, which also contains a table of the absorption bands of the principal staining agents, together with the proper screen and plate that should be used to photograph a specimen stained with any of the stains named. The booklet contains a concise statement of the principles involved, of the method of combining the screens, directions for tricolour work, exposure, developing, &c. The plates are undoubtedly some of the best for photomicrography that have yet been placed on the market, and the "Allochrome" plates will be found very useful in ordinary work by those who desire pictures of natural objects showing the proper gradations of light and shade. A criticism which might be made is that the gelatin screens are somewhat delicate, being easily affected by damp and heat (it is true they may be obtained cemented between two glass plates, but are then much more costly). We have no hesitation in saying that Messrs. Wratten and Wainwright have made a distinct advance, and have brought out their screens and plates on lines far more scientific than has hitherto been done.

THE London Geological Field Class has arranged its excursions for the study of the London district, under the direction of Prof. H. G. Seeley, F.R.S., to commence on Saturday, April 27. Mr. J. W. Jarvis, St. Mark's College, Chelsea is the honorary secretary.

THE Halifax Education and Public Library Committee has arranged for the publication of a series of descriptive pamphlets on the more important objects in the Bankfield Museum under its care. We have received a copy of the fourth of the series, sold to the public for one penny, which is on "Egyptian Tablets," and is written by Mr. Thomas Midgley, curator of the Bolton Museums. The tablets in the Halifax Museum were brought from Thebes to this country by Mr. Jeremiah Rawson about 1839. They were built into the wall of one of the rooms of the Halifax Literary and Philosophical Society, and remained practically forgotten until eight years ago, when they were transferred to the Bankfield Museum, walled in, and covered with glass. The pamphlet contains the result of Mr. Midgley's work in deciphering the tablets. The inscriptions all consist of prayers to various gods that funeral offerings of food, drink, and so on may be given to the deceased in an after life. Mr. H. Ling Roth, honorary curator of the museum, contributes a preface to the pamphlet.

MR. EDWARD M. LANGLEY, of Bedford, writes announcing the discovery of an interesting contribution to the history of English mathematics in the form of a hitherto unpublished letter by the discoverer of "Taylor's theorem." The letter in question was addressed to the Rev. Mr. Newcome, fellow of St. John's College, Cambridge, under

date November 24, 1711. In alluding to the appointment of Saunderson to the Lucasian chair of mathematics at Cambridge, Brook Taylor expresses his opinions on the then prevailing spirit of mathematical teaching in the following words, which possess considerable interest in the light of modern thoughts on the subject. The writer says:—"I am very glad Mr. Saunderson has it and hope he will fully answer the expectations the Electors have of him. He is an extraordinary Algebraist, and I expect great Improvements in that Art from his hand; but (if I might have my desire) I would rather wish he would apply himself to the cultivation of Pure Geometry. That is a large subject, worthy of the labours of a Professor, and is abundantly more entertaining than the Contemplation of mere abstract quantities, which are the proper objects of Algebra; but that, truly speaking, is but an introduction to Mathematics as Logic is to Philosophy. *And it is my opinion that the prevailing humour of treating Geometry so much in an Algebraical way has prevented many noble discoveries that might otherwise have been made by following the methods of the Ancient Geometricians.*"

THE report of the Hampstead Scientific Society for the year 1906 shows that the work of the society has continued in a uniformly satisfactory manner. The society has been added to the list of "associated societies" of the British Association, and is affiliated to the South-Eastern Union of Scientific Societies. The Christmas juvenile lectures were successfully repeated, and a nature-study course for the benefit of those teaching young children was conducted by Mr. W. M. Webb.

THE general report on the operations of the Survey of India during the survey year ending September 30, 1905, has now been published. It was during the year with which the report deals that the Government of India appointed a committee to consider, among other matters, the state of the maps in each province and the measures required to bring them up to date. This committee has since reported that in many parts of India the maps are so out of date as to be of little use, and in some cases even misleading, owing to changes in roads since they were prepared. In order to carry out the recommendations of the committee it will be necessary to revise in the field practically the whole of the existing 1-inch maps of India, and to survey on either the 2-inch or the 1-inch scale the whole of the country for which maps on neither of these scales have ever yet been prepared. Omitting the Baluchistan Agency and the tribal area of the North-West Frontier Provinces, it is estimated that an area of 525,800 square miles of original survey will have to be re-surveyed, that a practical re-survey will have to be made of 479,000 square miles, while the maps of 266,300 square miles may be capable of revision in the field. There remains an area of 266,300 square miles for which cadastral maps are or will be available from which to prepare topographical maps with inconsiderable corrections in the field, and 135,900 square miles, chiefly in Burma, for which the maps are modern, and merely require re-drawing. It is proposed that the whole of this work should be carried out within twenty-five years, while the survey of Baluchistan, the North-West Frontier Province, and the country adjacent thereto should be completed within a much shorter period.

THE reviewer of the "Zoological Record" in last week's NATURE (p. 557) regrets to find that in the notice he omitted the second *n* in *Tyrranosaurus* and *Tyrannosaurus*.